

GOVERNMENT OF SASKATCHEWAN



DEPARTMENT OF PUBLIC HEALTH

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# DIPHTHERIA

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# DIPHTHERIA

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If advantage is taken of the knowledge we have about diphtheria, it can be entirely eliminated. We know how it is caused—by the diphtheria bacillus lodging in the nose or throat of a susceptible person. We know how it is spread—by the germ being expelled from the nose or throat of a diphtheria patient or carrier, as in coughing, sneezing, or expectorating. A person with diphtheria is constantly giving out, from the nose or throat, germs which can be found on the hands, skin, bedclothing, handkerchiefs, dishes, spoons and knives used by the patient, and other articles used in the room where the patient is kept. When recovering, if the person goes about the house, the germs get scattered everywhere. Those articles which have germs on them if carried away, may give diphtheria to those who handle or use them.

We know the symptoms it produces: Sore throat with grayish white membrane, headache, weakness, fever may be slight; if untreated the patient soon becomes toxæmic. It is not always possible to see the membrane on the throat as it sometimes develops on the larynx, lower down, and these cases are usually very serious. Croup or a croupy cough should always be viewed with suspicion, as it may be a case of diphtheria.

Children from one year up to ten years of age are very susceptible. Paralysis and heart disease are conditions which may follow as the result of diphtheria. A swab taken from the nose or throat of a case of diphtheria, when examined in the laboratory, generally reveals the diphtheria bacillus, and, as long as this

germ is found, the person from whose nose or throat the swab was taken could spread the disease to others. We know the cure for the disease—the use of diphtheria antitoxin to be given as early in the disease as possible, and in sufficiently large quantities. It is claimed that if diphtheria antitoxin is given on the first or even second day of the disease, in sufficiently large doses, there should be practically no deaths from diphtheria. Each hour of delay in giving antitoxin lessens the chances for recovery. The Department of Public Health recommends that antitoxin be given in all suspicious sore throat cases—not waiting for a positive diagnosis of diphtheria by a bacteriological examination—delay is dangerous.

Then if those persons who have been exposed to diphtheria as contacts, are given a small dose of diphtheria antitoxin, within the first day or two after exposure, it will usually protect them, but such protection lasts only about two weeks. Fortunately, we also know how to prevent diphtheria—by the use of diphtheria toxoid, which is given in three small hypodermic doses three weeks apart. This will produce immunity against diphtheria in from 90 to 95 per cent. of those treated.

By means of the “Schick” test it can be ascertained if immunity against diphtheria has been produced. The complete effect of the toxoid is not developed until about two months after the last dose of toxoid has been given.

The Department of Public Health furnishes Diphtheria Antitoxin, Diphtheria Toxoid and “Schick” test material free to physicians and hospitals, and we strongly urge that the general public take advantage of this protection against diphtheria. Many municipal councils are putting on toxoid campaigns in their municipalities, with splendid results.

## **REGULATIONS**

### **Notification**

“Notification” means the reporting to the proper authority of the existence or a suspicion of the existence of diphtheria.

A householder knowing or suspecting that a person within his family or household, or boarding or lodging with him, has diphtheria, shall give notification thereof.

When a physician ascertains that a patient under his care has diphtheria, he shall give notification thereof.

Every school teacher and every head of an educational institution who suspects that a pupil has, or that there exists in the home of a pupil, diphtheria, shall give notification of such suspicion.

### **Placarding**

In cities and towns the placarding shall be done by the medical health officer, and in places other than cities and towns by the attending physician or the householder.

### **Quarantine**

A person suffering from diphtheria shall be quarantined for ten days from the development of the disease and until two negative cultures have been taken from the nose and throat of the patient, made by a bacteriologist with twenty-four hour interval, except that in the case of cities, where it can be carried out to the satisfaction of the medical health officer or minister, isolation may be enjoined for ten days after the development of the disease, and until two negative cultures from the nose and throat have been made by a bacteriologist.

In localities where a bacteriological examination is unobtainable, quarantine for three weeks, and until no sore throat, nasal or aural discharge remain, shall be maintained.

Membranous Croup shall be considered as diphtheria.

Contacts may be released after a prophylactic dose of diphtheria antitoxin, and a negative throat and nose culture, provided further contact with the case has not occurred since the swab was taken.

Contacts refusing antitoxin may be released 7 days after the last exposure, provided a negative throat and nose culture has been obtained after the last exposure. When termination by culture is impracticable, contacts may be released three weeks after the last exposure.

## **Schools**

No child or other person suffering or convalescent from diphtheria shall be permitted to attend any private, public, parochial, Sunday or other school without a written certificate from the medical health officer, attending physician or the minister to the effect that the child or other person is no longer a source of infection to the public; and teachers shall exclude from school any such child or other person who cannot produce such certificate.

No child or other person residing upon the premises where diphtheria exists, or who has resided upon such premises within one week prior to the onset of the disease, shall be permitted to attend any school without a like certificate. In cities, such certificate shall only be given by the medical health officer.

## **SPECIAL PREVENTIVE PROVISIONS**

A suspected case of diphtheria shall be isolated until the diagnosis is confirmed or disproved. A clinical case of diphtheria shall be quarantined and treated as such, even if the results of the laboratory examination are negative.

Cases of diphtheria occurring in a public institution where the occupants are resident shall be treated in the same manner as cases occurring elsewhere. Every person in such an institution, whether sick or well, who is found to be harboring diphtheria bacilli, shall be quarantined until a negative report is made upon nose and throat cultures.

When complete quarantine cannot be obtained in one or more rooms of the institution the whole premises shall be quarantined.

If the individual, or individuals, harboring virulent diphtheria bacilli can be quarantined in a manner satisfactory to the medical health officer or the minister, the other occupants shall conform to the regulations for contacts.

Any articles soiled by discharges from the mouth, nose, ears and eyes shall be boiled or burned.

Swabs from the nose and throat shall be submitted to a bacteriologist for bacterial examination, after clinical symptoms have disappeared, to ascertain whether the bacilli are present or not.

A diphtheria "carrier" must be isolated.

## **SALE OF MILK AND OTHER FOOD STUFFS FROM INFECTED PREMISES PROHIBITED**

Whenever a case of diphtheria (membranous croup, diphtheritic croup) occurs on any premises where milk or other food stuffs are

produced, handled or sold, the sale, exchange or distribution in any manner whatsoever, or the removal from infected premises of milk, cream, any milk products or other food stuffs, until the case has terminated and the premises and contents and all utensils are thoroughly disinfected under the direction of the medical health officer or medical attendant, is prohibited.

## **DELIVERIES OF MILK, GROCERIES AND OTHER NECESSITIES**

Milk, food stuffs and other necessary supplies may be delivered at premises quarantined for diphtheria, but there must be no contact of any kind between the inmates of the quarantined premises and the delivery agents. Wherever practicable milk should be delivered in bottles. Where milk cannot be delivered in bottles, the householder should place a freshly scalded bottle or pail to receive the milk at some convenient place outside of the house out of reach of dogs and cats. No milk bottle, basket, or any other article whatsoever may be taken out of, or away from the infected premises during the period of quarantine, unless in the case of milk bottles that have been boiled for five minutes.

## **EXCLUSION OF ANIMALS FROM INFECTED PREMISES**

Cats and dogs shall be excluded from premises in which there is diphtheria, as those animals may be the means of spreading diphtheria. If they have been in contact with the patient they should be killed, or given a thorough bath in a five per cent. solution of carbolic acid or formalin.

## **DISINFECTION**

When vacated by death or removal, the rooms which have been occupied by a person



suffering from diphtheria shall, with the contents, be thoroughly cleansed and exposed for four hours to the air and sunshine. All persons who have occupied the rooms during quarantine or isolation shall have their clothing cleaned, and exposed to the sun and air for four hours, and take a bath before dismissal.

Before leaving infected premises, attendants on the sick and convalescents shall wash their hands and take a bath in a solution of soap and water, to which has been added two ounces of carbolic acid, or one drachm of mercuric chloride, to each gallon of water, and then change to uninfected clothing. The hair must be thoroughly washed.

Contacts, before mixing with unexposed persons or with the public, shall take a bath and change to clean clothing.

In case of the death or removal of a patient suffering from diphtheria the rooms in which the patient has been treated shall be dealt with as follows:

- (1) Floors and woodwork in rooms shall be thoroughly scrubbed with soap and water; walls shall be cleaned by being rubbed down with a damp cloth; then the rooms shall be thoroughly aired by opening the windows for four hours.
- (2) Bedding soiled by the discharges of the patient, which cannot be thoroughly cleaned by washing and boiling, shall be destroyed.

Unsoiled bedding, blankets, quilts, pillows and mattresses, unless disinfected by steam, shall be sprinkled or sprayed with a ten per cent. solution of formalin on each layer, folded and wrapped in a clean sheet and placed in a

cupboard or box for six hours, and then exposed to fresh air and sunlight.

Woollen clothing and other unwashable goods shall be dry cleaned by immersion in gasoline and then exposed to fresh air and sunlight for four hours.

Cotton and linen goods and clothing which have been soiled shall be immersed in a five per cent. solution of izal or carbolic acid for two hours and then washed and boiled for thirty minutes.

Books may be disinfected by immersion in a five per cent. solution of carbolic acid and gasoline and then exposed to the fresh air until dry.

Patient's discharges from the mouth, nose, eyes and ears shall be received in soft cloths or absorbent cotton and burned.

Separate dishes shall be kept for the use of patients and shall be boiled after being used.

In cities and towns placarding shall be done under the supervision of the medical health officer, but in villages and rural districts by the medical attendant, as part of the treatment of the case, or by the householder.

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In 1938 in Saskatchewan there were 256 cases of diphtheria resulting in 28 deaths. In 1940 in the city of Toronto there was not one case of diphtheria as practically all children have had diphtheria toxoid.



